

Appl. No. 10/688,242
Reply to Office Action of October 24, 2005

REMARKS:

Applicant appreciates the thorough examination of the application that is reflected in the Office Action dated October 24, 2005.

To expedite prosecution of this application, Applicant amends independent claims 1, 10 and 16 to clarify those claims, cancels independent claim 11, and amends claims 12-15 such that they now depend from claim 10 instead of claim 11.

Claims 1-10 and 12-20 (3 independent claims; 19 total claims) are pending in the application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

Art-based Rejections

Claim 1

The Official Action rejects claims 11-20 under 35 U.S.C. 102(b) as being anticipated by Marshall (USPN 3,643,178) and rejects claims 11-13 and 16 under 35 U.S.C. 102(b) as being anticipated by Lundstrom (USPN 4,461,009). The Official Action rejects claims 1-6, 8 and 10 under 35 U.S.C. 103(a) as being unpatentable over Marshall (USPN) in view of Pang (US 20030227957), and rejects claims 7 and 9 under 35 U.S.C. 103(a) as being unpatentable over either Marshall or Lundstrom and Pang and further in view of admitted prior art (APA).

Applicant respectfully traverses these rejections for at least the following reasons.

Claim 1

In FIG. 1 of the Marshall reference, a cylindrical ruby rod (described as a laser material) 8 is disclosed which outputs coherent light into a substantially omnidirectional light frequency resonator. The resonator includes a directional filter assembly 11 which includes a fixed birefringent element 12b and variable birefringent element (e.g., Kerr cell) 13b. The directional filter assembly 11 receives coherent light emitted from a cylindrical ruby rod 8. As noted at col. 3, lines 46-49 of the Marshall reference, the directional filter assembly 11 operates to "vary the preferred direction of oscillation in one plane only." As noted at col. 6, lines 42-47 of the Marshall reference, the fixed birefringent element 12b operates to select a preferred beam angle β in the plane of FIG. 1. The variable birefringent element 13b operates to increase or decrease the amount of phase retardation provided by the fixed birefringent element 12b for a given wave direction. See col. 6, lines 53-55 of the Marshall reference.

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Applicant submits that the Marshall reference fails to teach a birefringent lens located within the resonating chamber and configured to "directly receive the laser light produced by the optical gain medium," or that "the birefringent lens is configured to focus and to affect the polarity of the laser light produced by the optical gain medium and passing through the birefringent lens," as recited claim 1. Even assuming for the sake of argument that the cylindrical ruby rod 8 in the Marshall reference is an "optical gain medium," Applicant submits that the fixed birefringent element 12b is not "located within the resonating chamber" and is not "configured to focus and to affect the polarity of the laser light" produced by the cylindrical ruby rod 8, as recited claim 1.

In the embodiment shown in FIG. 6 of the Marshall reference, the fixed birefringent lens 68 is configured to receive laser light produced by the polarizer 78, and not from the amplifying means/filter 71 or laser element 72. As such, the fixed birefringent lens 68 is not configured to affect the polarity of the laser light produced by the amplifying means/filter 71 and passing through the fixed birefringent lens 68. Rather the polarizer 78 is used to affect the polarity of the laser light produced by the amplifying means/filter 71 before it passes through the fixed birefringent lens 68.

FIG. 2 of the Lundstrom reference shows a similar arrangement. Polarizer 16 is disposed between gain medium 20 and birefringent lens 12, and functions to split the light into two beams. As such, the birefringent lens 12 is configured to receive polarized laser light produced by the polarizer 16, and not from the gain medium 20. Moreover, because the one light beam transmitted by the polarizer 16 has already been polarized, the birefringent lens 12 is not configured to affect the polarity of the laser light produced by the gain medium 20; rather this function is accomplished by the polarizer 16.

Applicant submits that the Pang reference, cited for its teaching of an enclosure for solid-state laser system, is similarly deficient.

Therefore, Applicant submits that the cited references fail to teach a birefringent lens located within the resonating chamber and configured to "directly receive the laser light produced by the optical gain medium, wherein the birefringent lens is configured to focus and to affect the polarity of the laser light produced by the optical gain medium and passing through the birefringent lens," as recited claim 1.

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Accordingly, Applicant submits that the cited references do teach or suggest all of the limitations of claim 1, and therefore the rejection of claim 1 is improper and should be withdrawn. Thus, Applicant submits that claim 1 and its dependent claims 2-9 are in condition for allowance.

Claim 10 recites "a birefringent lens located within the resonating chamber and configured to directly receive the laser light produced by the optical gain medium, wherein the birefringent lens is formed of an optically active material and comprises a substantially curved exterior surface to focus the laser light while adjusting the polarity of the laser light produced by the optical gain medium and passing through the birefringent lens, thereby forming the laser beam." For at least the same reasons stated above with respect to claim 1, Applicant submits that the cited references fail to teach or suggest the above underlined recitations of claim 10, and that the rejection of claim 10 is also improper and should be withdrawn. Thus, Applicant submits that claim 10 and its dependent claims 12-15 are also in condition for allowance.

Claim 16 recites "an integrated birefringent lens displaced between the gain medium and the second mirror and configured to directly receive the laser light produced by the gain medium, wherein the integrated birefringent lens comprises an optically active material and a curved surface to thereby simultaneously affect both the polarization and focus of light produced by the gain medium and passing therethrough." For at least the same reasons stated above with respect to claim 1, Applicant submits that the cited references fail to teach or suggest the above underlined recitations of claim 16, and therefore that the rejection of claim 16 is improper and should be withdrawn. Thus, Applicant submits that claim 16 and its dependent claims 17-20 are in condition for allowance.

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In conclusion, for the reasons given above, all claims now presently in the application are believed allowable and such allowance is respectfully requested. Should the Examiner have any questions or wish to further discuss this application, Applicant requests that the Examiner contact the undersigned attorney at (480) 385-5060.

If for some reason Applicant has not requested a sufficient extension and/or have not paid a sufficient fee for this response and/or for the extension necessary to prevent abandonment on this application, please consider this as a request for an extension for the required time period and/or authorization to charge Deposit Account No. 50-2091 for any fee which may be due.

Respectfully submitted,

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